

INSTALLATION MANUAL NMEA DATA CONVERTER

Model **IF-NMEA2K2**



WARNING

Do not install the unit where it may get wet from rain or water splash.

Water in the unit can result in fire, electrical shock or damage the equipment.

Do not disassemble or modify the equipment.

Fire, electrical shock or serious injury can result.



CAUTION

Observe the following compass safe distances to prevent interference to a magnetic compass:

	standard compass	steering compass
IF-NMEA2K2	0.30m	0.30m

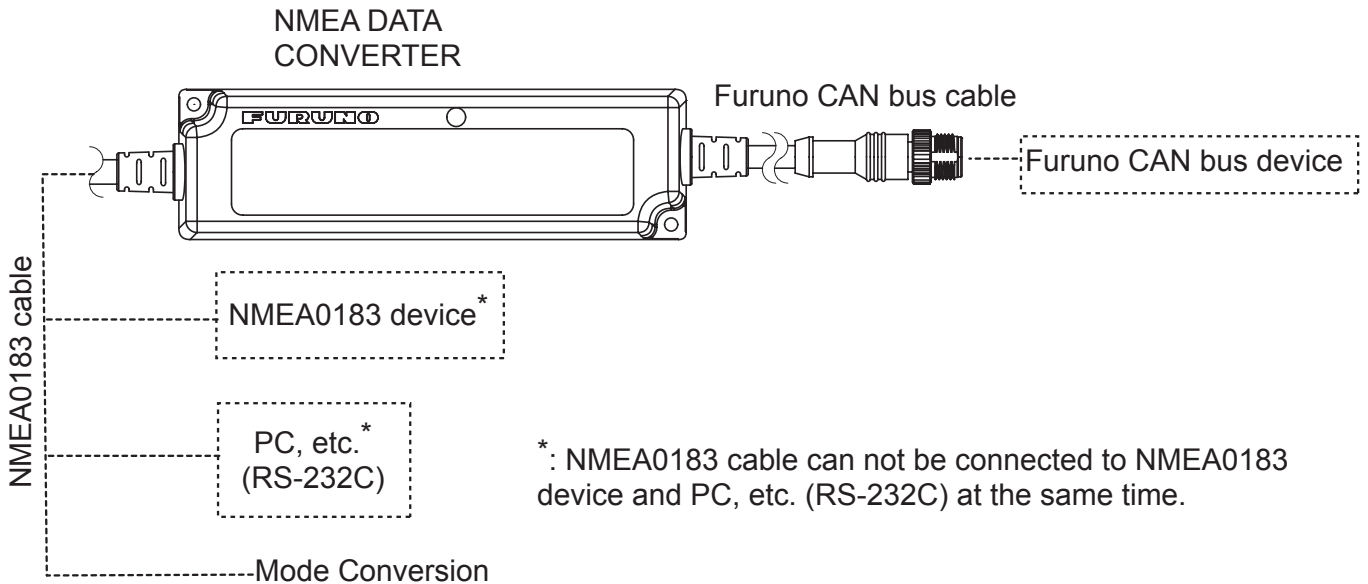


FURUNO ELECTRIC CO., LTD.

www.furuno.com

System Configuration

The NMEA Data Converter IF-NMEA2K2 converts Furuno CAN bus format data to NMEA0183 format data and vice versa.



Specifications of NMEA Data Converter

Interface	Furuno CAN bus	
	NMEA0183	
Power Supply	12V 96mA (LEN: 2)	
Environmental conditions	Ambient temperature	-15°C to 55°C
	Waterproofing standard	IP55* *: NMEA0183 cable terminal is not waterproof.
	Relative humidity	95% (at 40°C)
	Storage temperature	-20°C to 60°C
	Vibration resistance	IEC60945

Equipment List

Name	Type	Code No.	Qty
NMEA Data Converter	IF-NMEA2K2	-	1
Self Tapping Screw	3x20	000-167-940-10	2

Installation

Mounting Considerations

- Locate the data converter well away from areas subject to water splash and rain.
- Keep the data converter out of direct sunlight because of heat that can build up inside the cabinet.

Mounting

Fix the data converter to the mounting location with two self tapping screws (3x20), referring to the outline drawing in this manual.

Wiring

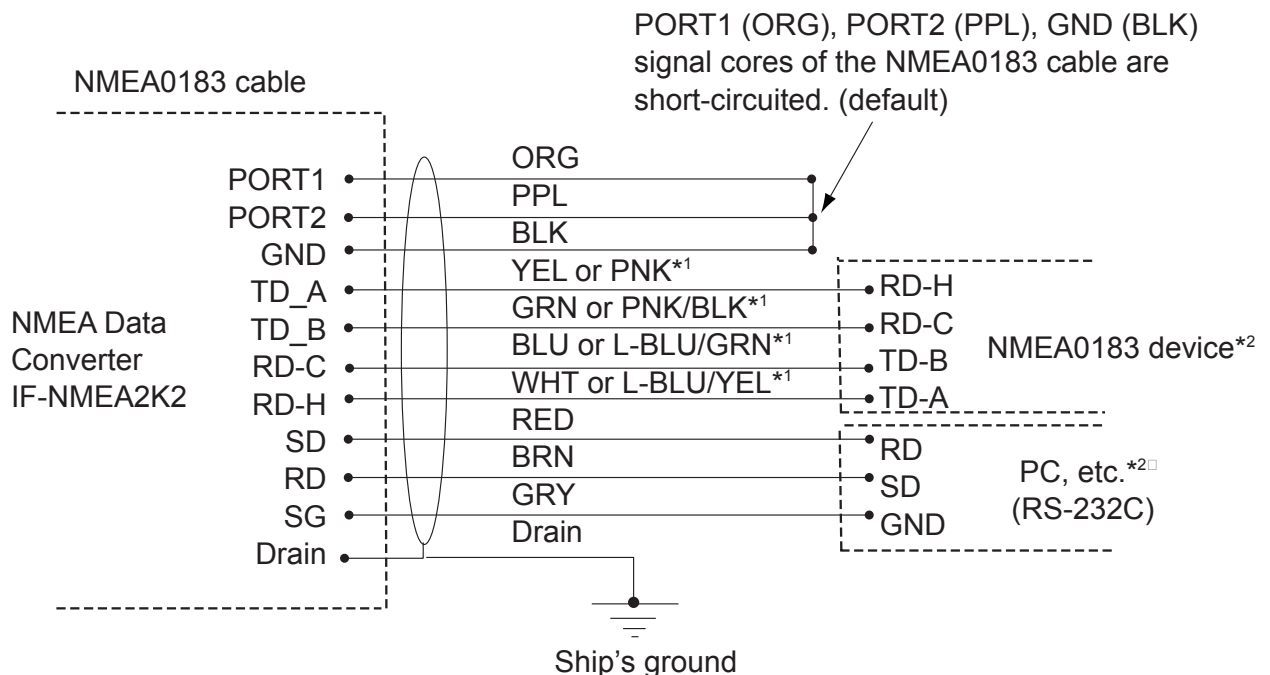
Connection to Furuno CAN bus device

Connect the Furuno CAN bus cable to the Furuno CAN bus device. See “Furuno CAN bus Network Design” (TIE-00170-x) for details about CAN bus network.

Connection to NMEA0183 device

Connect the NMEA0183 signal cores to NMEA0183 device, referring to the interconnection diagram as below.

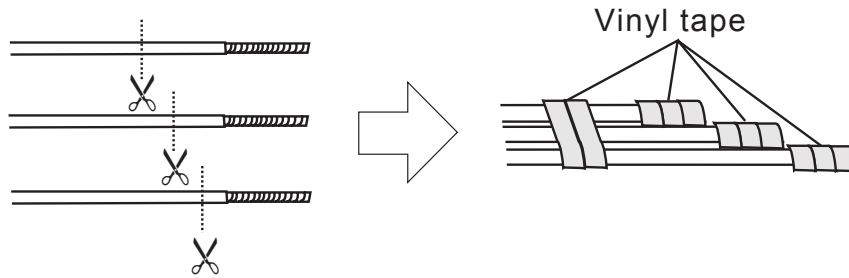
Note: NMEA0183 cable terminal is not waterproof. Therefore, install the equipment away from areas subject to water splash and rain.



*1: The color of signal cores depend on the shipment time.

*2: NMEA0183 cable can not be connected to NMEA0183 device and PC, etc. (RS-232C) at the same time.

After the connection, cut the unused cable cores and wind vinyl tape around the each edge of the wires and fix them so that they do not touch other signal cores or ground.



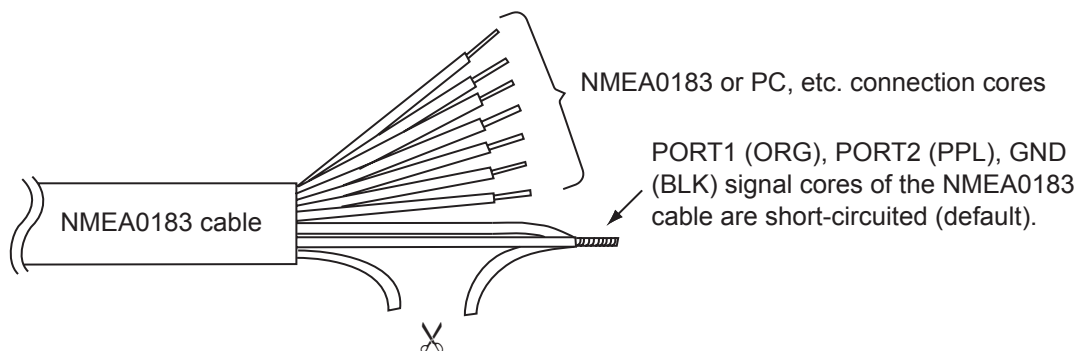
Conversion Mode

PORT1 (ORG), PORT2 (PPL), GND (BLK) signal cores of the NMEA0183 cables are short-circuited (default). By cutting the specified signal core, the conversion mode can be changed. Select the conversion mode according to the baud rate of the connected device. For connection to an AIS device, select the AIS mode.

Note1: Check the applicable checkbox on the nameplate according to the conversion mode selected.

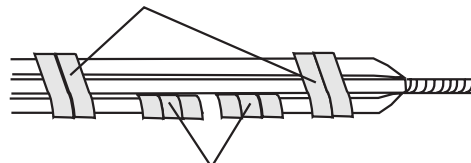
Note2: Wind vinyl tape around unused cores and fix the cores so that they do not touch other signal cores or ground.

Note3: Turn off the unit before cutting the signal cores.



Cut the PORT1 (ORG) or PORT2 (PPL) signal core.

Bind signal cores with vinyl tape.



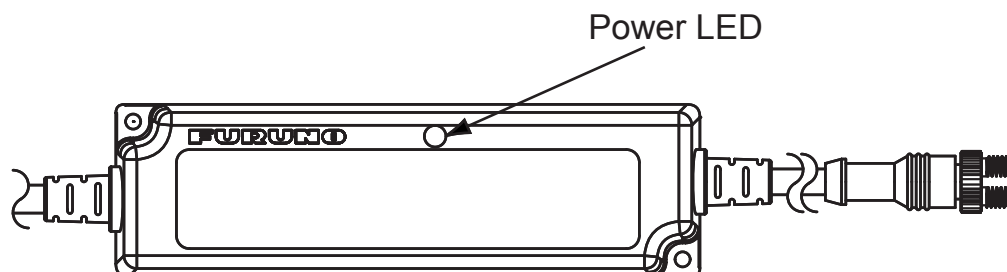
Wind vinyl tape around cores to insulate them.

Action	Conversion Mode / Baud Rate
No action	Normal / 4800bps (default setting)
Cut the PORT1 (ORG)	High Speed / 38400bps
Cut the PORT2 (PPL)	AIS / 38400bps
Cut PORT1 (ORG) and PORT2 (PPL)	Zeus*/4800bbs

*: In the Zeus mode, the unit outputs RMB sentence when Furuno CAN bus "129283" and "129284" is input.

Turning Power On

No operation is required for the user to turn the power on. The power is supplied by Furuno CAN bus line. The Power LED (yellow) flashes when the data converter is powered.



Input/Output Comparing

Furuno CAN bus → NMEA0183

Some Furuno CAN bus PGN output a number of NMEA0183 sentences.

NP means “nonperiodic”.

ID means “Message ID”.

Furuno CAN bus Input		NMEA0183 Output	Sending Cycle			
			Normal	High Speed	AIS	Zeus
65280	Heave [Proprietary PGN]	PFECheve	×	100ms	×	×
126992	System Time	RMC	1s, 2s*	1s	1s	1s, 2s*
		ZDA	1s	1s	×	1s
127245	Rudder	RSA	×	100ms	×	×
127250	Vessel Heading	HDG	1s	100ms	×	1s
		HDT	1s	100ms	×	1s
		RMC	1s, 2s*	1s	1s	1s, 2s*
		VHW	1s	1s	×	1s
127251	Rate of Turn	ROT	×	100ms	×	×
127257	Attitude	PFECatt	×	100ms	×	×
127258	Magnetic Variation	HDG	1s	100ms	×	1s
		RMC	1s, 2s*	1s	1s	1s, 2s*
128259	Speed Through Water	RMC	1s, 2s*	1s	1s	1s, 2s*
		VHW	1s	1s	×	1s
		VTG	1s	1s	×	1s
128267	Water Depth	DPT	1s	1s	×	1s
128520	Tracked Target Data	TTM	×	NP	NP	×
129026	COG & SOG, Rapid Update	RMC	1s, 2s*	1s	1s	1s, 2s*
		VTG	1s	1s	×	1s

Furuno CAN bus Input		NMEA0183 Output	Sending Cycle			
			Normal	High Speed	AIS	Zeus
129029	GNSS Position Data	GGA	1s	1s	×	1s
		RMC	1s, 2s*	1s	1s	1s, 2s*
129033	Time & Date	RMC	1s, 2s*	1s	1s	1s, 2s*
		ZDA	1s	1s	×	1s
129038	AIS Class A Position Report	VDM ID: 1,2,3	×	×	NP	×
129039	AIS Class B Position Report	VDM ID: 18	×	×	NP	×
129040	AIS Class B Extended Position Report	VDM ID: 19	×	×	NP	×
129041	AIS Aids to Navigation (AtoN) Report	VDM ID: 21	×	×	NP	×
129283	Cross Track Error	APB	1s, 2s*	1s	×	×
		RMB	×	1s	×	1s, 2s*
129284	Navigation Data	APB	1s, 2s*	1s	×	×
		RMB	×	1s	×	1s, 2s*
129285	Navigation – Route/WP Information	RMB	×	1s	×	1s, 2s*
129793	AIS UTC and Data Report	VDM ID: 4	×	×	NP	×
129794	AIS Class A Static and Voyage Related Data	VDM ID: 5	×	×	NP	×
129795	AIS Addressed Binary Message	VDM ID: 6	×	×	NP	×
129797	AIS Binary Broadcast Message	VDM ID: 8	×	×	NP	×
129798	AIS SAR Aircraft Position Report	VDM ID: 9	×	×	NP	×
129801	AIS Addressed Safety Related Message	VDM ID: 12	×	×	NP	×
129802	AIS Safety Related Broadcast Message	VDM ID: 14	×	×	NP	×
129808	DSC Call Information	DSC	NP	NP	NP	NP
		DSE	NP	NP	NP	NP
129809	AIS Class B “CS” Static Data Report, Part A	VDM ID: 24	×	×	NP	×
129810	AIS Class B “CS” Static Data Report, Part B	VDM ID: 24	×	×	NP	×

Furuno CAN bus Input		NMEA0183 Output	Sending Cycle			
			Normal	High Speed	AIS	Zeus
130306	Wind Data	MWD	1s	1s	×	1s
		MWV	1s	100ms	×	1s
130310	Environmental Parameters	MDA	1s, 5s*	1s	×	1s, 5s*
130311		MTW	1s	1s	×	1s
130312	Temperature	MDA	1s, 5s*	1s	×	1s, 5s*
		MTW	1s	1s	×	1s
130830	Target Information	PFEC,SDmrk	NP	NP	×	NP
130831	Target Bottom Classification	PFEC,SDtbd	NP	NP	×	NP
130832	Target Fish Length	PFEC,SDtfl	NP	NP	×	NP

*: When the volume of sent data exceeds the communication band, the TX interval becomes longer.

NMEA0183 → Furuno CAN bus

Some NMEA0183 sentences output a number of Furuno CAN bus PGN. The latest inputted sentence is given priority.

NP means “nonperiodic”.
ID means “Message ID”.

NMEA0183 Input	Furuno CAN bus Output		Sending Cycle			
			Normal	High Speed	AIS	Zeus
APB, RMB	129283	Cross Track Error	1s	1s	×	1s
	129284	Navigation Data	1s	1s	×	1s
	129285	Navigation – Route/WP Information	NP	NP	×	NP
BWC, BWR	129284	Navigation Data	1s	1s	×	1s
	129285	Navigation – Route/WP Information	NP	NP	×	NP
DPT	128267	Water Depth	1s	1s	×	1s
DSC, DSE	129808	DSC Call Information	NP	NP	NP	NP
GGA, GLL, GNS	129029	GNSS Position Data	1s	1s	×	1s
HDG	127250	Vessel Heading	100ms	100ms	×	100ms
	127258	Magnetic Variation	1s	1s	×	1s
HDT	127250	Vessel Heading	100ms	100ms	×	100ms
MDA, MTW	130310	Environmental Parameters	500ms	500ms	×	500ms
	130312	Parameters	2s	2s	×	2s
MWD, MWV	130306	Wind Data	100ms	100ms	×	100ms
RMC	126992	System Time	1s	1s	1s	1s
	127250	Vessel Heading	100ms	100ms	100ms	100ms

NMEA0183 Input	Furuno CAN bus Output		Sending Cycle			
			Normal	High Speed	AIS	Zeus
RMC	127258	Magnetic Variation	1s	1s	1s	1s
	128259	Speed Through Water	1s	1s	1s	1s
	129026	COG & SOG, Rapid Update	250ms	250ms	250ms	250ms
	129029	GNSS Position Data	1s	1s	1s	1s
	129033	Time & Date	1s	1s	1s	1s
ROT	127251	Rate of Turn	×	100ms	×	×
RSA	127245	Rudder	×	100ms	×	×
THS	127250	Vessel Heading	100ms	100ms	×	100ms
TLL	130828	Mark Position Information [Proprietary PGN]	NP	NP	×	NP
VDM	129038	AIS Class A Position Report ID: 1,2,3	×	×	NP	×
	129039	AIS Class B Position Report ID: 18	×	×	NP	×
	129040	AIS Class B Extended Position Report ID: 19	×	×	NP	×
	129041	AIS Aids to Navigation (AtoN) Report ID: 21	×	×	NP	×
	129793	AIS UTC and Data Report ID: 4	×	×	NP	×
	129794	AIS Class A Static and Voyage Related Data ID: 5	×	×	NP	×
	129795	AIS Addressed Binary Message ID: 6	×	×	NP	×
	129797	AIS Binary Broadcast Message ID: 8	×	×	NP	×
	129798	AIS SAR Aircraft Position Report ID: 9	×	×	NP	×
	129801	AIS Addressed Safety Related Message ID: 12	×	×	NP	×
	129802	AIS Safety Related Broadcast Message ID: 14	×	×	NP	×

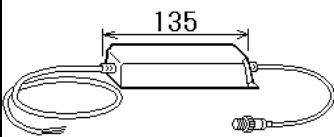
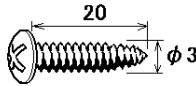
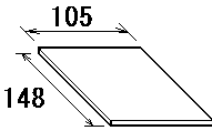
NMEA0183 Input	Furuno CAN bus Output		Sending Cycle			
			Normal	High Speed	AIS	Zeus
VDM	129809	AIS Class B "CS" Static Data Report, Part A ID: 24	×	×	NP	×
	129810	AIS Class B "CS" Static Data Report, Part B ID: 24	×	×	NP	×
VHW	127250	Vessel Heading	100ms	100ms	×	100ms
	128259	Speed Through Water	1s	1s	×	1s
VTG	128259	Speed Through Water	1s	1s	×	1s
	129026	COG & SOG, Rapid Update	250ms	250ms	×	250ms
XTE	129283	Cross Track Error	1s	1s	×	1s
ZDA	126992	System Time	1s	1s	×	1s
	129033	Time & Date	1s	1s	×	1s
PFECatt	127257	Attitude	×	100ms	×	×
PFECChve	65280	Heave [Proprietary PGN]	×	1s	×	×
PFEC,SDmrk	130830	Target Information	NP	NP	×	NP
PFEC,SDtbd	130831	Target Bottom Classification	NP	NP	×	NP
PFEC,SDfl	130832	Target Fish Length	NP	NP	×	NP

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PACKING LIST

14CV-X-9851 -2 1/1

IF-NMEA2K2

NAME	OUTLINE	DESCRIPTION/CODE No.	QTY
ユニット UNIT			
NMEAデータ変換器 NMEA DATA CONVERTER		IF-NMEA2K2	1
		000-020-511-00	
工事材料 INSTALLATION MATERIALS			
+トラスタップネジ SELF TAPPING SCREW		3X20 SUS304	2
		000-167-940-10	
図書 DOCUMENT			
装備要領書(和英) INSTALLATION MANUAL (JP/EN)		IMC-44591-*	1
		000-176-101-1*	

型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらかが入っています。なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

(略図の寸法は、参考値です。DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

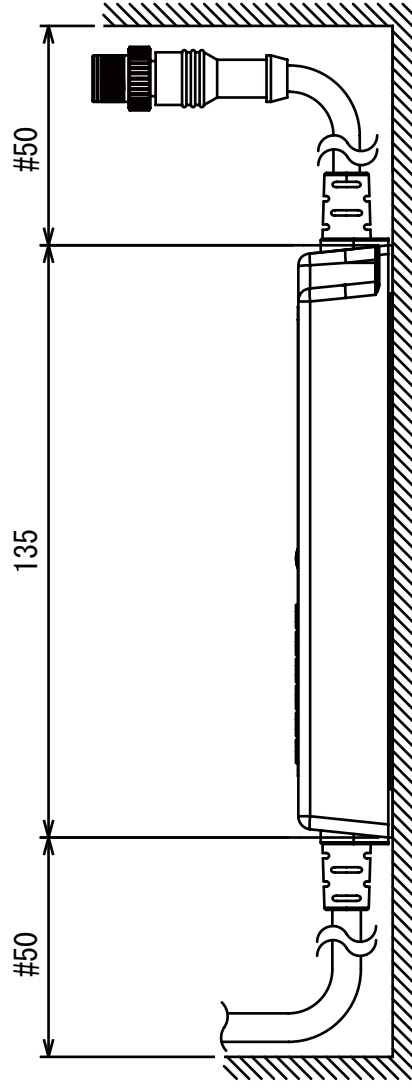
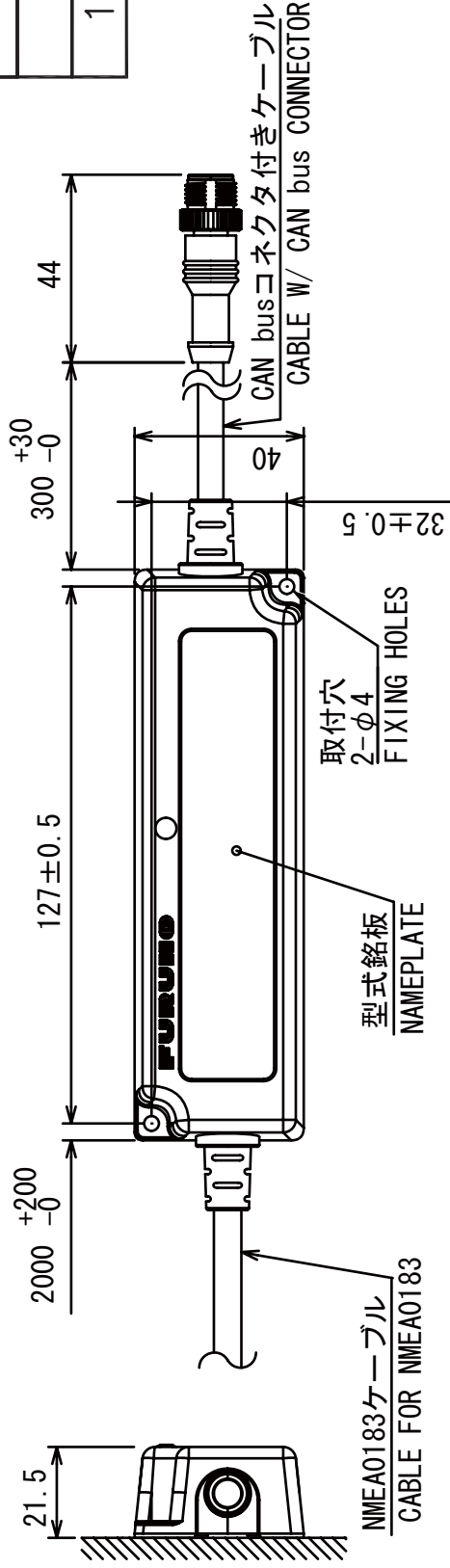
C4459-Z02-C ☆

外寸図

OUTLINE DRAWING

表1 TABLE 1

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
$L \leq 50$	± 1.5
$50 < L \leq 100$	± 2.5
$100 < L \leq 500$	± 3



#: サービス空間
SERVICE CLEARANCE

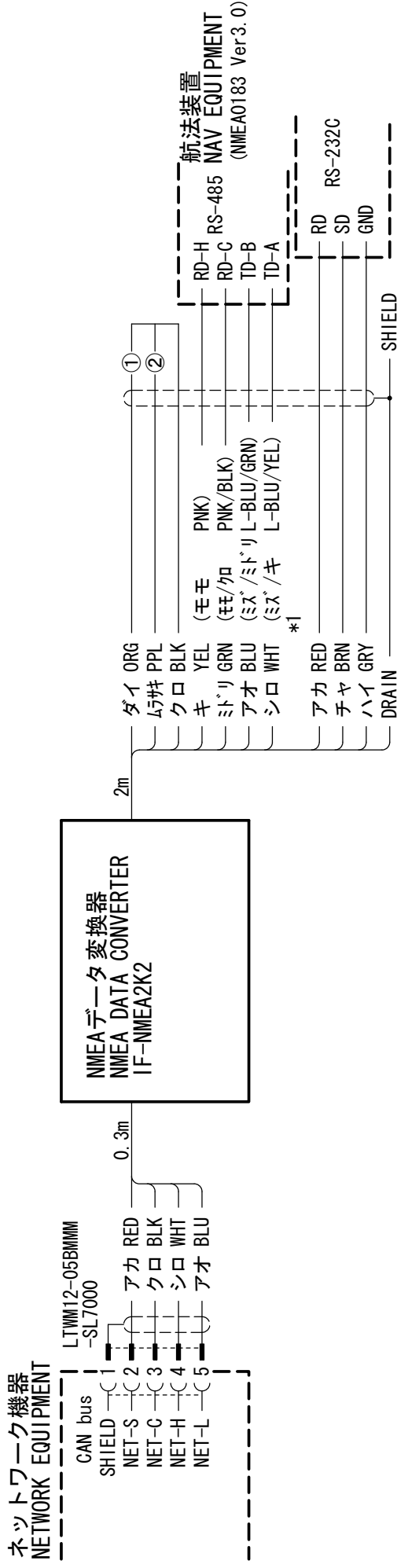
注記

- 1) 指定外の寸法公差は表 1 による。
- 2) #印寸法は最小サービス空間法 (最小配線寸法) とする。
- 3) 取付用ネジはトラスタックピンネジ呼び径 3×20 を使用のこと。

NOTE

1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. #: MINIMUM SERVICE CLEARANCE.
3. USE TAPPING SCREWS $\phi 3 \times 20$ FOR FIXING THE UNIT.

相互結線図 INTERCONNECTION DIAGRAM



注記

* 1) 括弧内に示す絶縁色の場合があります。

NOTE

*1: THE CABLE OF COLOR CODES WITH BRACKET MAY BE SUPPLIED.

切断ライン番号 CUTOFF LINE No.	絶縁色 COLOR	モード MODE	備考 REMARK
なし DEFAULT		NORMAL	
① : PORT 1	ダイ ORG	HIGH SPEED	
② : PORT 2	ㇿ 井 PPL	AIS	
両方 BOTH LINE		ZEUS	APBに替わってRMBセンテンスを出力する。 SENTENCE RMB OUTPUTTED INSTEAD OF APB.

C4459-C02-C